

TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION U.S. DEPARTMENT OF AGRICULTURE · · FOREST SERVICE

No. 420

Timing and Yields of First Commercial Thinnings in Red Pine Plantations

Pulpwood thinning operations, recently completed in three Lower Michigan red pine plantations, provide an opportunity to examine the effects of site quality and stand density on the timing and yields of first commercial thinnings in stands managed intensively for high-grade veneer bolts, sawlogs, poles, and piling.

Each of the plantations was thinned "from below" through regular timber sale procedures in harvesting 4 to 7 cords of pulpwood per acre at stumpage rates of \$1.00 to \$3.00 per cord, depending mainly upon distance to market. The stands were left in what was judged to be good growing condition for at least 5 years, when each will be rechecked to determine the need for additional thinning (see table below)

Plan- ta- tion	Site quality	Age Yrs.	Initial spacing Ft.	Before thinning Ft.	Diam. In.	Stand per acre					
						Stems Before	Stems After	Basal area Before	Basal area After	Volume ^{1/} Before	Volume ^{1/} After
						No.	No.	Sq.Ft.	Sq.Ft.	Cds.	Cds.
1	Good	25	8x8	35	6	700	500	130	100	20	15
2	Fair	40	5x5	40	5-	1,400	600	175	100	20	13
3	Poor	35	6x8	30	5	750	500	120	80	14	10

^{1/} The volume removed (5, 7, and 4 cords, respectively) consisted of 100-inch bolts to a 4-inch top diameter (inside bark) harvested under close utilization.

Several general inferences can be drawn from the examples: (1) the better the site the earlier a commercial thinning is feasible; (2) close spacings, especially on less productive sites (stand 2), do not permit commercial operations when thinnings are needed silviculturally; and (3) differences in present merchantable volume among the three stands are due in part to slower height growth on the poorest site and to overstocking on the fair site.

There are some 500,000 acres of successful red pine plantations in the Lake States, many of which have already reached or soon will reach the size for commercial thinning. Specific schedules for thinning red pine plantations must still be developed, but guides which may prove helpful for initial thinnings are: (1) thin "from below" except for defective trees; (2) thin so that the average spacing between trees after cutting is 25-30 percent of average stand height; (3) leave well formed, good growing stock at the rate of 80-100 square feet of basal area per acre; and (4) leave 500-600 trees per acre well distributed throughout the plantation.

October 1954

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